

**ABSTRACT OF THE DISCLOSURE**

10 A gallium nitride-based HEMT device, comprising a channel layer formed of an InGaN alloy. Such device may comprise an AlGaN/InGaN heterostructure, e.g., in a structure including a GaN layer, an InGaN layer over the GaN layer, and a (doped or undoped) AlGaN layer over the InGaN layer. Alternatively, the HEMT device of the invention may be fabricated as a device which does not comprise any aluminum-containing layer, e.g., a GaN/InGaN HEMT device or an InGaN/InGaN HEMT device.

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